

Appl. No.: 10/067,255
Reply to Office Action of April 11, 2006

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2. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent exhibits autonomous behavior and engages in a human-simulated or human-like decision making process.

3. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent assists the at least one user in the decision making generating alternative actions to be selected by the at least one user for the at least one aerial combat situation by providing the at least one user advice on coordinating the at least one aerial combat situation.

4. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent is configurable to perform independent decisions in at least one of real-time and non-real time for the at least one aerial combat situation.

5. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents for the decision making, and wherein the plurality of collaborating intelligent agents exhibit autonomous behavior and engage in at least one of a human-simulated and human-like decision making process.

6. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 5,

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wherein at least one of the plurality of collaborating intelligent agents includes or accesses a portion of the data not shared by another of the plurality of intelligent agents.

7. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 5, wherein the decision making is implemented or the user assisted by implementing global decisions that affect the plurality of the collaborating intelligent agents and the at least one user on the basis of the plurality of collaborating agents exchanging, debating and discussing the data.

8. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents for ~~the decision-making~~ generating alternative actions to be selected by the at least one user, and

wherein the plurality of collaborating agents collaborate and optionally debate with each other and with the at least one user.

9. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents for ~~the decision-making~~ generating alternative actions to be selected by the at least one user, and

wherein the plurality of collaborating intelligent agents include at least one of role-playing agents and adviser agents.

10. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1,

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a wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents, wherein the at least one user comprises a plurality of users, and

wherein the plurality of collaborating intelligent agents collaborate with the plurality of users to jointly perform the decision-making generating alternative actions to be selected by at least one user.

11. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1,

wherein the at least one user comprises a plurality of independent or collaborating users, and

wherein the at least one intelligent agent collaborates with the plurality of independent or collaborating users to jointly perform the decision-making generating alternative actions to be selected by the at least one user.

12. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent assists the at least one user in ~~the decision-making~~ generating alternative actions to be selected by at least one user for the at least one aerial combat situation by providing the at least one user advice on coordinating the at least one aerial combat situation using a closed loop feedback process between the at least one intelligent agent and the at least one user.

13. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 12, wherein the at least one intelligent agent accepts real-time corrections to the environment as

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perceived by the at least one intelligent agent from the at least one user in at least one of a non-real time and real-time period.

14. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent assists the at least one user in ~~the decision making~~ generating alternative actions to be selected by the at least one user for at least one of the at least one aerial combat situation, sea situation, undersea situation, space situation, land situation, railroad situation, automotive situation, underground situation, space situation, land situation, and traffic situation, and any combinations thereof.

15. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1,

wherein the at least one user comprises a plurality of independent or collaborating users, and

wherein the at least one intelligent agent collaborates with the plurality of independent or collaborating users with different sets of environmental information representing each of the users different perceptions of the environment to perform the generating of alternative actions to be selected by the at least one user.

16. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 15, wherein the at least one intelligent agent utilizes the different sets of environmental information to at least one of enhance and correct the at least one intelligent agent's view of the environment.

17. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 16,

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wherein at least one of corrected and enhanced information resulting from the different sets of environmental information is propagated to the plurality of independent or collaborating users for at least one of review, adjusting and updating of the environmental information.

18. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1,

wherein the at least one user comprises a plurality of independent or collaborating users, and

wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents representing the plurality of independent or collaborating users having different environmental perceptions.

19. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent learns over time by accumulating knowledge about at least one of user behavior, habits and psychological profiles of the at least one user.

20. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 19, wherein the at least one intelligent agent includes a priority scheme, and wherein a repeated rejection by the at least one user of a particular type of agent recommendation by the at least one intelligent agent causes the at least one intelligent agent to review its priority scheme and optionally reprioritize the priority scheme.

21. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 20,

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wherein as a result of the at least one intelligent agent reviewing its priority, the at least one intelligent agent does not recommend a specific action or in-action.

22. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one intelligent agent collects and evaluates at least one user performance indicator including mental state, physical condition, fatigue, and stress of the at least one user, responsive to the environment and complexity associated therewith.

23. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 22, wherein the at least one intelligent agent limits at least one of user privileges, user independent behavior and user authorization without authorization being provided by another user, when the at least one user performance indicator negatively reflects user performance.

24. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 22, wherein the at least one intelligent agent provides a recommended course of action responsive to the at least one user performance indicator.

25. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 22, wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents, wherein the at least one user comprises a plurality of users, and wherein a first recommended course of action is provided for the at least one user responsive to the at least one user performance indicator, and a second recommended course of

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action is provided for the plurality of users, optionally including the at least one user, responsive to at least one of collaboration between the plurality of agent, users, and a combination thereof.

26. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1,

wherein the at least one intelligent agent comprises a plurality of collaborating intelligent agents,

wherein the at least one user comprises a plurality of users.

wherein user specific information is collected and evaluated for each of the plurality of users and group specific information is collected and evaluated for the plurality of users as a group, and

wherein a plurality of first recommended courses of action are provided for one or more of the plurality of users responsive to the user specific information, and a plurality of second recommended courses of action are provided for the plurality of users, optionally including the at least one user, responsive to the group specific information.

27. (Currently amended) A computer implemented or user assisted method of decision making generating alternative actions to be selected by at least one user according to claim 1,

wherein said processing step further comprises the step of processing and visually building, using the computer, the at least one aerial combat situation using the at least one tactical agent on a user display, and

wherein said visual building step further comprises the step of generating an object and imbedding the object in real-time in at least one of a working and running object environment, thereby processing the at least one aerial combat situation.

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28. (Currently amended) A computer implemented or user assisted method of ~~decision~~
making generating alternative actions to be selected by at least one user according to claim 1,

wherein said method further comprises the step of collecting environment information in
real-time from at least one sensing device,

wherein said processing step further comprises the steps of processing, using the
computer, the at least one aerial combat situation using the at least one tactical agent on a user
display, and automatically generating an object representative thereof as an object model
indicative of the environment.

29. (Currently amended) A computer implemented or user assisted method of ~~decision~~
making generating alternative actions to be selected by at least one user according to claim 1,

wherein the data further comprises a plurality of resources,

wherein the at least one tactical agent comprises a plurality of tactical agents monitoring
at least one the plurality of resources, each of the plurality of tactical agents capable of
perceiving the at least one of the plurality of resources differently,

wherein said processing step further comprises the steps of processing, using the
computer, the at least one aerial combat situation using the plurality of tactical agents associated
with the plurality of resources.

30. (Currently amended) A computer implemented or user assisted method of ~~decision~~
making generating alternative actions to be selected by at least one user according to claim 1,

wherein the data further comprises information about a plurality of resources,

wherein said method further comprises the step of collecting environment information in
real-time, and wherein at least one of:

at least one of the plurality of resources are known to the at least one tactical agent, and

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the at least one tactical agent recognizes objects in real-time from the environment information based on observable characteristics and behavior associated therewith.

31. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1,

wherein the at least one user comprises a plurality of users including a plurality of weapons directors and at least one senior director,

wherein said method further comprises the sequential or non-sequential steps of:

displaying to at least one of the plurality of weapons directors and tile at least one senior director event information about events occurring in said method and actions associated therewith;

enabling the at least one of the plurality of weapons directors and the at least one senior director to issue orders to at least one resource managed by the at least one weapons director;

displaying recommendations generated by the at least one intelligent agent to the weapons director;

enabling the plurality of users to control speed of said method during a simulation including restarting the simulation, checking a state of the simulation, and terminating-the simulation;

enabling the at least one user to activate or deactivate the at least one tactical agent associated with the at least one user;

enabling each of the plurality of users to log into the simulation or log out of the simulation; and

enabling the plurality of weapons directors to communicate with each other for resource transfer therebetween.

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32. (Currently amended) A computer implemented or user assisted method of ~~decision~~ making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one user comprises a plurality of users including a plurality of weapons directors and at least one senior director,

wherein said method further comprises the sequential or non-sequential steps of issuing an order by at least one of the weapons directors to request the at least one senior director to authorize transfer of resources between weapons directors.

33. (Currently amended) A computer implemented or user assisted method of ~~decision~~ making generating alternative actions to be selected by at least one user according to claim 1, wherein the at least one user comprises a plurality of users including a plurality of weapons directors and at least one senior director,

wherein each of the plurality of weapons directors includes:

at least one level having a value indicative of one of the following: unknown, novice, journeyman, expert, and master,

an allegiance indicating whether each of the plurality of weapons directors is one of the following: ours, enemy, and unknown,

a senior reference indicating the at least one senior director which each of the plurality of weapons directors reports thereto,

a list of enemy resources each of the plurality of weapons directors are responsible for managing, and

a human indicator indicating whether each of the plurality of weapons directors represents one of the at least one user and the at least one intelligent agent.

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34. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the data further comprises a plurality of resources, wherein each of the plurality of resources includes indicators to indicate resource status, including:

a mustBeHandled indicator indicative of at least one of the plurality of resources that must be handled, without determining a time of handling the resource,

a critical indicator indicative of at least one of the plurality of resources that must be handled immediately, and potentially jeopardizing predetermined goals,

a beingHandled indicator indicative of at least one of the plurality of resources currently being handled.

a committed indicator indicative of at least one of the plurality of resources committed to handling,

a pending indicator indicative of at least one of the plurality of resources which is pending commitment, and

a recall indicator indicative of at least one of the plurality of resources no longer needing to be handled.

35. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein said method is implemented in an object-oriented computing environment, wherein the at least one intelligent agent is implemented by at least one intelligent agent object, the at least one tactical agent is implemented by at least one tactical agent object,

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wherein the data further comprises a plurality of resources, each of the plurality of resources is implemented by at least one resource object and comprising at least one moving resource object including moving resources, at least one group object comprising at least one group of the moving resources.

36. (Currently amended) A computer implemented or user assisted method of decision ~~making~~ generating alternative actions to be selected by at least one user according to claim 35, wherein the data further comprises at least one plane object including properties common to a plurality of planes.

37. (Currently amended) A computer implemented or user assisted method of decision ~~making~~ generating alternative actions to be selected by at least one user according to claim 36, wherein the at least one moving resource object comprises moving resource indicators including: destroyed if the at least one moving resource is destroyed, at base if the at least one moving resource has landed at a base, and getting fuel if this moving resource is in process of being refueled.

38. (Currently amended) A computer implemented or user assisted method of decision ~~making~~ generating alternative actions to be selected by at least one user according to claim 35, wherein the at least one user comprises a plurality of users including a plurality of weapons directors and at least one senior director,

wherein the plurality of weapons director are implemented by a weapons director object, and the at least one senior director to whom at least one of the plurality of weapons directors report is implemented by at least one senior director object include a list of at least one of the plurality of weapons directors reporting thereto.

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39. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 38, wherein the at least one of the plurality of tactical agents pass recommendations to at least one of the plurality of weapons directors and the at least one user, the recommendations being implemented by a recommendation object.

40. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1, wherein the data further comprises a plurality of resources, wherein the at least one user comprises a plurality of users including a plurality of weapons directors and at least one senior director, and

wherein the at least one senior director approves and coordinates transfer of at least one of the plurality of resources from one of the plurality of weapons directors to another of the plurality of weapons directors.

41. (Currently amended) A computer implemented or user assisted method of ~~decision making~~ generating alternative actions to be selected by at least one user according to claim 1,

wherein the plurality of resources includes a plurality of enemy resources and a plurality of available resources, wherein said method further comprises the steps of:

determining, for each of the plurality of weapons directors, by the at least one tactical agent, at least one of the plurality of enemy resources that must be handled, and for the at least one enemy resource determining strength, speed, and time available for handling;

building, by the at least one tactical agent, a first list of at least one of the available resources to handle the at least one enemy resource, and for the at least one available resource determining strength, speed, pilot fatigue factor, and remaining flight time;

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building, by the at least one tactical agent, for each of the plurality of enemy resources requiring handling, a second list of candidates of the plurality of resources capable of being dispatched to handle the at least one of the plurality of enemy resources;

processing, by the at least one tactical agent, the first list of at least one of the available resources and determining at least one available resource to handle the at least one enemy resource, and performing a resource commitment to commit at least one of the plurality of available resources for each of the plurality of weapons directors; and

assigning, by the at least one tactical agent, when no available resource is capable of handling the at least one enemy resource the corresponding enemy resource to a third list of resources to be handled by a team, and processing for the at least one each enemy resource associated therewith without regard to responsibilities and resources associated with specific weapons directors, and performing a team resource commitment to commit at least one team of available resources including transfer of resources between the plurality of weapons directors after authorization by the at least one senior weapons director.

42. (Currently amended) A computer implemented or user assisted method of ~~decision~~ making generating alternative actions to be selected by at least one user according to claim 1,

wherein the data further comprises a plurality of resources,

wherein the at least one user comprises a plurality of users including a plurality of weapons directors and at least one senior director,

wherein the at least one tactical agent accumulates historical recommendation information for at least one of the plurality of weapons directors including recommendation type, number of accepted recommendations, current resource order of accepted recommendations, accepted resource locations, number of not accepted recommendations, current resource orders

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of not accepted recommendations, and not accepted resource locations for not accepted recommendations.

43. (Currently amended) In an intelligent object oriented agent system, a computer implemented or user assisted method of ~~decision-making~~ generating alternative actions to be selected by at least one user in at least one situation, comprising the steps of:

configuring, using a computer, at least one tactical agent implemented by at least one tactical agent object that includes a plurality of resources corresponding to resources involved in the at least one situation, including first data on the environment and the resources involved in the at least one situation, second data on the near certain future status of the environment and the resources involved in the at least one situation, and third data on the possible future status of the environment and the resources involved in the at least one situation

~~immediate certainties, near certainties, and longer term possibilities characterizing the at least one situation,~~ each of the plurality of resources being implemented by at least one resource object and comprising at least one moving resource object including moving resources, at least one group object comprising at least one group of the moving resources;

processing, using the computer, the at least one situation and the plurality of resources corresponding to the environment and the resources involved in the situation, using the at least one configured tactical agent; and

assisting the at least one user in selecting at least one of the alternative actions for the at least one situation by providing the at least one user information generated by the processing step; and

implementing the ~~decision-making~~ at least one of the alternative actions, by at least one user or independently by at least one intelligent agent, ~~responsive to~~ based on said processing.

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step and assisting steps when selected by the at least one user, and the decision-making
implementing of the at least one of the alternative actions being used to direct the use of one or
more of the plurality of resources involved in the situation. initiate at least one action with
respect to the at least one situation.

44. (Currently amended) An intelligent agent computer system, comprising:

means for configuring at least one tactical agent that ~~includes~~ with data corresponding to
an aerial combat environment and with the data corresponding to resources involved in the at
least one aerial combat situation, including first data on the aerial combat environment and the
resources involved in the at least one aerial combat situation, second data on the near certain
future status of the aerial combat environment and the resources involved in the at least one
aerial combat situation, and third data on the possible future status of the aerial combat
environment and the resources involved in the at least one aerial combat situation; immediate
certainties, near-certainties, and longer-term possibilities characterizing at least one aerial combat
situation;

means processing, using the computer, the at least one aerial combat situation and the
data corresponding to the aerial combat environment and the resources involved in the aerial
combat situation, using the at least one configured tactical agent; and

means for assisting the at least one user in selecting at least one of the alternative actions
for the at least one aerial combat situation by providing the at least one user information
generated by the means for processing; and

means for implementing the ~~decision-making~~ at least one of the alternative actions, by at
least one user or independently by at least one intelligent agent, ~~responsive to~~ based on said

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processing means and assisting means when selected by the at least one user, and the decision making implementing of the at least one of the alternative actions being used to direct the use of one or more of the resources involved in the aerial combat situation, initiate at least one action with respect to the at least one aerial combat situation.

45. (Currently amended) A computer readable tangible medium storing instructions for implementing a user assisted method of decision-making generating alternative actions to be selected by at least one user associated in at least one aerial combat situation, the instructions executable by a computer, said instructions including the functions of:

configuring, using the computer, at least one tactical agent that includes with data corresponding to an aerial combat environment and with the data corresponding to resources involved in the at least one aerial combat situation, including first data on the aerial combat environment and the resources involved in the at least one aerial combat situation, second data on the near certain future status of the aerial combat environment and the resources involved in the at least one aerial combat situation, and third data on the possible future status of the aerial combat environment and the resources involved in the at least one aerial combat situation;
immediate certainties, near certainties, and longer term possibilities characterizing the at least one aerial combat situation;

processing, using the computer, the at least one aerial combat situation and the data corresponding to the aerial combat environment and the resources involved in the aerial combat situation, using the at least one configured tactical agent; and

assisting the at least one user in selecting at least one of the alternative actions for the at least one aerial combat situation by providing the at least one user information generated by the processing step; and

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implementing ~~the decision-making~~ at least one of the alternative actions, by at least one user or independently by at least one intelligent agent, ~~responsive to~~ based on said processing ~~step and assisting steps when selected by the at least one user~~, and the decision making implementing of the at least one of the alternative actions being used to direct the use of one or more of the resources involved in the aerial combat situation. ~~initiate at least one action with respect to the at least one aerial combat situation.~~

46. (Currently amended) A computer readable tangible medium storing instructions for implementing a user assisted method of ~~decision-making~~ generating alternative actions to be selected by at least one user associated with in at least one combat situation, the instructions executable by a computer, said instructions including the functions of:

configuring, using the computer, at least one tactical agent ~~that includes~~ with data corresponding to a combat environment and with the data corresponding to resources involved in the at least one combat situation, including first data on the combat environment and the resources involved in the at least one combat situation, second data on the near certain future status of the combat environment and the resources involved in the at least one combat situation, and third data on the possible future status of the combat environment and the resources involved in the at least one combat situation; ~~immediate certainties, near certainties, and longer term possibilities characterizing the at least one aerial combat situation;~~

processing, using the computer, the at least one ~~aerial~~ combat situation and the data corresponding to the combat environment and the resources involved in the combat situation, using the at least one configured tactical agent; and

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assisting the at least one user in selecting at least one of the alternative actions for the at least one combat situation by providing the at least one user information generated by the processing step; and

implementing the decision-making at least one of the alternative actions, by at least one user or independently by at least one intelligent agent, responsive to based on said processing step and assisting steps when selected by the at least one user, and the decision-making implementing of the at least one of the alternative actions being used to direct the use of one or more of the resources involved in the aerial combat situation. initiate at least one action with respect to the at least one combat situation.